1/1/99-00452

RESPONSE TO COMMENTS
FIELD SAMPLING PLAN RELATIVE RISK RANKING SYSTEM DATA COLLECTION PLAN: ADDENDUM FOR BACKGROUND DETERMINATION ST. JULIENS CREEK ANNEX SITE CHESAPEAKE, VIRGINIA

United States Environmental Protection Agency (USEPA)

1.0 GENERAL COMMENTS

1. The revised draft does not addressed the following issues which were included in the original review comments:

   (a) Why complete analysis for all TAL/TCL parameters plus ordnance and ordnance byproducts are not included in the background assessment. If volatiles, semi-volatiles, pesticides, PCBs, Dioxins, or explosive compounds are detected in an alleged background sample, then the sample is not useable as a background sampling location, since the sample location has been disturbed by human activity.

Response: The primary intent of the study is to determine naturally occurring background concentrations of inorganic constituents in the soil, surface water, sediment and groundwater. It will also be used to determine if organic constituents that are not suspected of being site-related are present in media (i.e., groundwater sediment and surface water) that could transport contamination onto the site. These data are required to determine if a site is impacting these media. These data will be used in future remedial investigations, feasibility studies, risk assessments, and other environmental assessments conducted at St. Juliens Creek Annex in order to evaluate if the presence of contamination is site related, and the potential additional risk due to these constituents. Because it is expected that historical pest control practices at St. Juliens Creek involved facility-wide pesticide spraying, surface soils will be analyzed for pesticides as well. These pesticide data will be used qualitatively.

During project scoping for this background study at St. Juliens Creek, Mr. Rob Thompson (USEPA) suggested reviewing the background study which was conducted at Naval Weapons Station Yorktown, Yorktown, Virginia. As a basis for this investigation, the Naval Weapons Station Yorktown (NWSY) study was referenced for information regarding sampling and analysis approach.

The NWSY study did not require the analysis of organics at any of the surface soil or subsurface soil locations. In fact, the only analysis performed for surface and subsurface soils was for TAL inorganics (subsurface soils were also analyzed for TOC and pH). In comparison, St. Juliens Creek surface and subsurface soils will be analyzed for TAL inorganics, limited TCL Pesticides (5 surface soils from fill material and 5 surface soils from native soils), TOC, pH, grain size, and USCS classification. The St. Juliens Creek background study also proposes to sample groundwater and sediments

for TCL volatiles, TCL semi-volatiles, and pesticides/PCB's and surface water for TCL semi-volatiles. These three (3) media will also be analyzed for TAL inorganics as well as parameters such as pH, conductivity, TOC, etc. (refer to the background study draft addendum for additional parameters). There was no mention in the NWSY study of sampling surface soil or subsurface soils for organics or prohibiting the use of analytical results from a sample location after the collection and analysis had been performed.

Due to the discrepancy between the suggested analytical approach (NWSY study) and the above comment, further discussion with USEPA and VDEQ is requested before this background study investigation is finalized and the decision to implement field activities is initiated.

(b) If sampling will conducted in any wetland areas and if so, whether sediment or soil samples will be used as a background reference.

Response: Background sediment samples will be collected in upgradient locations of St. Juliens Creek and Blows Creek. As a wetland determination survey has not yet been conducted, references to "wetlands" have been removed from the document and a more appropriate description ("tidally influenced areas") has been added. Background soil samples are not located in these tidally influenced areas.

2. The background document indicates that composite samples from 0-2 feet will be collected to evaluate potential exposures to burrowing organisms as suggested by NOAA. Although this seems like a reasonable approach, NOAA does not recollect making this recommendation and encourages coordination with the BTAG on this issue. Surface soil samples are proposed to be collected from 0-3 inches. Normally BTAG requests a 0-6" interval for surface soil collection, and 0-3 inches for sediment. Six inch to two foot interval may also be needed, since the data sub- surface soil will be collected for the ERA.

Response: The intent of the supplemental sampling depths is to satisfy all of the needed data gaps from one location when possible. This will limit the number of sample locations resulting in decreased sample analysis providing as much data as possible using the funds available. Surface soil sample depths will be changed to 0-6 inches for this investigation as well as the supplemental field investigations at St. Juliens Creek sites. These data and the data from the previous sampling events will be used in determining both human health and ecological risk concerns.

The initially proposed range of the composite samples of 0-3 feet, from ground surface to depth where soils would not be impacted by the water table (typically 4 - 5 feet bgs), was thought to be most suitable for potential exposure to burrowing animals. Further scoping of this project identified concerns that the composite range of 0-3 feet may dilute contaminants in these samples; therefore, a composite depth of 0-2 feet was determined to be more appropriate for use in the initial screening in the ERA process. As burrowing animals may go deeper than the proposed 0-2 feet composite sampling interval, the interval may influence potential risk to error on the conservative side. Therefore, this information will be reviewed and discussed in the risk management steps built into the ERA process. The text for the work plan will be revised to provide the rationale in determining the composite soil sampling interval of 0-2 feet. The revised

text will be available for review during the meeting to discuss the comments and responses to comments on this work plan and the work plans for the site specific supplemental field investigations.

2.0 SPECIFIC COMMENTS

1. **Section 1.2, Surface and Subsurface Sampling, Page 4, last paragraph.** The text states that COPCs included VOCs, SVOCs, pesticides and PCBs, Dioxin and inorganics. However, the background assessment will include analyses for only TAL Inorganics and TCL Pesticides. The text does not include rationale for not including all detected analyte groups in the background assessment. Rationale for not including all detected analyte groups in the background assessment should be included in this section.

Response: See Response to General Comment # 1(a) above.

2. **Figure 1-2.** The legend for Figure 1-2 does not define "N", "F", and "C" as "Native Soil", "Fill Material" and "Composite Sample", respectively. The legend does also not identify " " as a proposed sampling location. These definitions should be added to the legend for Figure 1-2.

Response: The legend in Figure 1-2 has been updated to include definitions for "N", "F", and "C" as on Figure 1-2-A. The revised figure will be available for review during the meeting to discuss the comments and responses to comments on this work plan and the work plans for the site specific supplemental field investigations.

3. **Table 2-1, Number of Soil Samples.** The third column of Table 2-1 presents the number of samples to be collected for each laboratory parameter. However, the number of samples presented in Table 2-1 does not seem to agree with the number of soil samples described in Section 1.2, page 4, of the text. The text indicates that 10 native soil locations and 10 fill material locations will be collected for both surface and subsurface soils for a total of 40 soil samples. The text also states that all surface and subsurface soils will be analyzed for TAL Inorganics, TCL Pesticides, TOC, soil pH, grain size and soil classification by ASTM D2487. The apparent discrepancies between the text and Table 2-1 regarding the number of soil samples to be collected for each laboratory parameter should be resolved and corrections made to the text and table as appropriate.

Response: The sample numbers in Table 2-1 are correct. As stated in Section 1.2, twenty (20) surface soil and twenty (20) subsurface soil samples which will be collected for a total of forty (40) surface and subsurface soil samples. In addition, five (5) subsurface "composite" soil samples will also be collected. This brings the total soil samples to be collected during the background study to forty-five (45).

The text in Section 1.2 regarding TCL pesticide analysis is incorrect. All soil samples will not be analyzed for TCL pesticides. Instead, 10 surface soil samples (5 from fill material and 5 from native soils) will include analysis for TCL pesticides; the text will be revised.

4. **Table 2-1, Laboratory Parameters for Soil Samples.** Table 2-1 does not include soil classification by ASTM D2487 as a laboratory parameter for soil samples. Since this analysis is specified in Section 2.1 of the text, soil classification by ASTM D2487 should be added to the laboratory parameter list for soil samples in Table 2-1.

Response: Table 2-1 has been revised to include the analysis for soil classification by ASTM D2487 as indicated in Section 1.2 of the text (The reference to Section 2.1 above is assumed to be a typographical error). The revised table will be available for review during the meeting to discuss the comments and responses to comments on this work plan and the work plans for the site specific supplemental field investigations.

5. **Section 3.1, Surface Water and Sediment Sampling, Page 10, 5th paragraph.** The text states that COPCs in surface water identified during the RI included an SVOC and inorganics. The discussion further indicates that the background assessment for surface waters will include TAL metals, rather than TAL inorganics. Since the COPCs identified in the RI included inorganics, the background assessment should include TAL inorganics, rather than only TAL metals.

Response: For consistency, the text in Section 1.3 has been changed to indicate TAL inorganics (The reference to Section 3.1 above is assumed to be a typographical error).

6. **Table 2-2, Laboratory Parameters for Surface Waters.** Table 2-2 does not include the field analyses to be conducted as laboratory parameter for surface water samples. Since these analyses are specified in Section 3.1 of the text, the field parameters should be added to the laboratory parameter list for surface water samples in Table 2-2.

Response: Because Table 2-2 was intended to only include laboratory analysis for aqueous samples collected during this study, field parameters/analysis were not included. However, Table 2-2 has been revised to include both laboratory and field analysis performed on groundwater and surface water samples (The reference to Section 3.1 above is assumed to be a typographical error and was intended to reference Section 1.3). The revised table will be available for review during the meeting to discuss the comments and responses to comments on this work plan and the work plans for the site specific supplemental field investigations.

7. **Table 2-1, Laboratory Parameters for Sediment Samples.** Table 2-1 does not include soil pH, grain size, or soil classification by ASTM D2487 as laboratory parameters for sediment samples. Since these analyses are specified in Section 3.1 of the text, soil pH, grain size and soil classification by ASTM D2487 should be added to the laboratory parameter list for sediment samples in Table 2-1.

Response: Table 2-1 has been revised to include soil pH, grain size, and soil classification (The reference to Section 2.1 above is assumed to be a typographical error and was intended to reference Section 1.3). The revised table will be available for review during the meeting to discuss the comments and responses to comments on this work plan and the work plans for the site specific supplemental field investigations.

8. **Table 2-2, Laboratory Parameters for Groundwater Samples.** Table 2-2 does not include the field analyses to be conducted as laboratory parameter for groundwater samples. Since these analyses are specified in Section 3.1 of the text, the field parameters should be added to the laboratory parameter list for groundwater samples in Table 2-2.

Response: See response to Specific Comment #6 above.

9. **Section 2.0,.Field QC Procedures.** Information regarding holding times, sample containers and appropriate preservation should be included in this section. The above information could be presented in a tabular format for ease of review.

Response: Section 2.0 has been revised to include tables which provide information regarding holding times, sample containers, and preservation requirements for both solid and aqueous samples. The revised table will be available for review during the meeting to discuss the comments and responses to comments on this work plan and the work plans for the site specific supplemental field investigations.

10. **Table 3-1, Analytical Procedures.** Table 3-1 does not include soil classification by ASTM D2487. Since analysis will be performed on soil and sediment samples for the background assessment, it should be included in Table 3-1.

Response: Table 3-1 has been revised to include soil classification by ASTM D2487. The revised table will be available for review during the meeting to discuss the comments and responses to comments on this work plan and the work plans for the site specific supplemental field investigations.

SECTION 3.0, TYPOGRAPHICAL ERRORS

1. Section 3.1, Surface Water and Sediment Sampling, Page 12. The first of line on this page should read "...All sampling areas...", rather than "...All smpling areas...".

Response: Comment noted. Text has been revised.

Virginia Department of Environmental Quality (VDEQ)

Comment 1. It is my understanding that this plan is to collect and analyze background samples to be used in the risk assessment process as a basis for comparison for the entire St. Juliens Creek facility and not for any specific unit/AOC.

Please be advised that soil surface water and sediment samples that reveal detectable levels of non-naturally occurring contaminants will not be acceptable for use in any risk assessment comparison or calculation. Contamination by non-naturally occurring compounds in groundwater may not eliminate a sample from use provided that it can be demonstrated that the contamination is arising from conditions off-site.

Response: See Response to USEPA General Comment # 1a above.

Comment 2 The sample depth, compositing, preservation, storage, sampling time relative to the tides and in the case of surface water and sediments seasonal rainfalls should correspond exactly (or as close as is reasonably possible) to those for the comparison (potentially contaminated samples). In addition, see response to USEPA General Comment General Comment # 2 above.

For example, soils samples taken at 0 to 6 inch depths must have background samples obtained at 0 to 6 inch depths instead of 0 to 3 inch. Composited 6 to 24 inch depth samples must have corresponding Composited background samples. Note that in most cases discrete samples are favored over composite. As there may be changes in the sampling plans for Landfill B, C, and D, and the Burning Grounds, corresponding changes must be made to the background sampling plan.

Response: The background samples of all media will be collected, preserved, and stored in a manner consistent with the environmental samples being compared. A table will be incorporated into the work plan summarizing this information. This table will be available for review during the meeting to discuss the comments and responses to comments on this work plan and the work plans for the site specific supplemental field investigations.

Sediment and surface water samples collected from tidally influenced water bodies (i.e., Blows Creek, St. Juliens Creek) will be collected as close to outgoing low tide as possible. This is consistent with past site work as well as with the planned investigations at Landfill B, Landfill C, Landfill D, and the Burning Grounds.

In addition, see Response to USEPA General Comment # 2 above.

Comment 3a. All samples, soil, sediment, surface water and groundwater must be analyzed for all of the parameters that will be used to analyze the potentially contaminated samples. Testing only for those contaminants which could be naturally occurring or occurring as a result of routine usage (pesticides) will not allow for any screening of the sample to verify that it was in fact from a "clean" site and is suitable for use as background for risk assessment or other comparisons purposes.

Response: See Response to USEPA General Comment # 1a above.

Comment 3b. I visited the proposed soil and groundwater sampling sites with Tim Reisch on 9-10-98. As the sites cannot be easily identified I will not provide written comments as to the suitability of the sites beyond those comments which were presented during the site visit.

I do, however, have concerns about using the wells SJS02-GW1 for background. The area in which these wells are located appears to have been disturbed and there appear to be a significant potential for site source contamination in this well. A more suitable site was identified during the site visit. It is located approximately 900 feet N-NW of the proposed wells, in the vicinity of building 365.

I am also concerned that the plan proposed using either SJS03-GW1 or SJS02-GW1 and not both as potential background wells. It is suggested that both SJS03-GW1 and the proposed new location well (see previous paragraph) be sampled along with the other "new" wells proposed to be sampled in the plan.

Response The initial scoping of the investigations on-going at St. Juliens included monitoring well placement in locations thought to be upgradient of the sites under investigation. These upgradient monitoring well locations were selected using professional judgement and assumptions on the effect of the nearby water bodies on groundwater flow. Groundwater elevation data from these upgradient monitoring wells and other monitor wells installed at the site were collected during the previous investigation. This groundwater elevation data confirmed the upgradient monitor well placement assumptions, and that monitoring wells SJS02-GW1 are upgradient of Site 2. For these reasons, monitoring wells SJS02-GW1 are considered viable for the background investigation in addition to providing upgradient groundwater data for the investigation of Site 2.

Comment 4. Groundwater, surface water and sediment samples shall be obtained during the same tidal phase as the comparison samples. Field measurement parameters shall be the same for the comparison samples and should include salinity.

Response: Surface water and sediment samples collected from tidally influenced water bodies will be collected during outgoing low tide. At this time, no attempt is planned to coordinate groundwater sampling events with tidal phase. The text will be revised to include the measurement of field parameters (conductivity, pH, temperature and salinity), consistent with field parameters

measured during the RIs. The text will be revised and available for review during the meeting to discuss the comments and responses to comments on this work plan and the work plans for the site specific supplemental field investigations.

Comment 5. Section 2.2. Field duplicate samples shall be collected at a frequency of 1 per 10 field samples per matrix as stated in the May 1997 work plan. The sample shall be a split sample. Field blanks shall be collected at a rate of 1 per week per matrix per water source.

Response: Comment noted. The text will be revised and available for review during the meeting to discuss the comments and responses to comments on this work plan and the work plans for the site specific supplemental field investigations.

Comment 6a. Section 2.3 matrix spike/matrix spike duplicates shall be collected at a frequency of 1 per group of up to 20 field samples per matrix per laboratory as stated in the May 1997 Work Plan. The number of samples in Table 2-1 appears to be correct with the exceptions of Aqueous Total column of Soil, TAL and TOC and the above notes corrections to the footnotes.

Response: The text, table, and footnotes will be revised and available for review during the meeting to discuss the comments and responses to comments on this work plan and the work plans for the site specific supplemental field investigations.

Comment 6b Why are nitramines and dioxins not being tested for in the background and burning ground site samples?

Response: It is assumed that if nitramines and dioxins are detected in environmental samples during site investigations, these constituents are present as a result of site activities. Therefore it is not necessary to analyze background samples for these parameters (also see Response to USEPA General Comment # 1a above).

During the initial site investigation five (5) dioxin subsurface soil samples were collected. No dioxin was detected in any of the five samples. As a result, the sampling for dioxin during the supplemental investigation is not planned. The supplemental investigation will analyze for explosives but the analysis of nitramine is not planned.